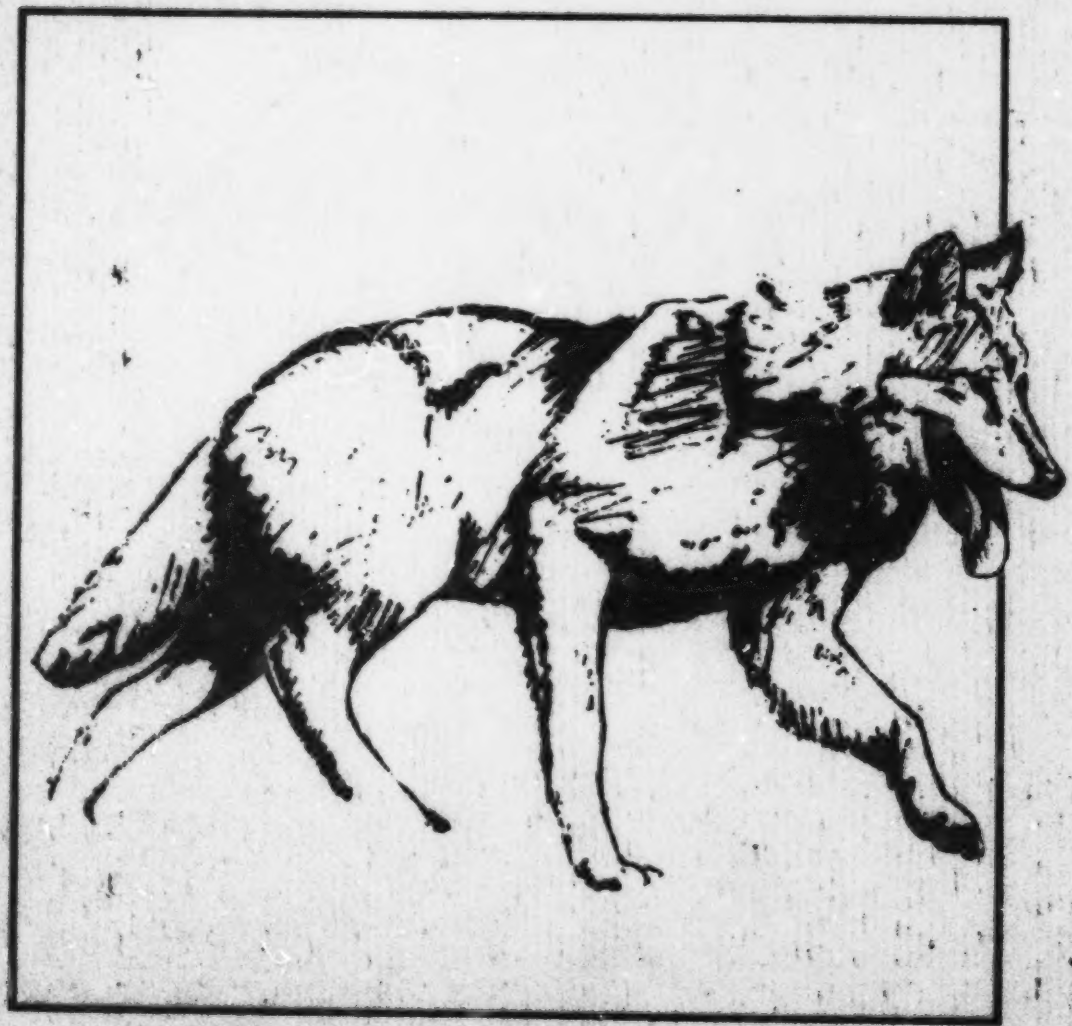
Historical and Present Status of Wolves in the Northwest Territories

Report No. 4



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HISTORICAL AND PRESENT STATUS OF WOLVES IN THE NORTHWEST TERRITORIES

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ABSTRACT

Relatively few wolves were killed in the Northwest Territories before 1924, when a $30 bounty payment was first introduced. During the 13 years of bounty payments, from 1924 to 1933 and from 1937 to 1939, an average of 1000 wolves was killed annually. Concern about a decline in barren-ground caribou populations led to a major wolf poisoning program on caribou ranges east of Great Bear Lake from 1951 to 1964. Wolf numbers appeared to have been reduced but they probably recovered quickly.

Extinction of wolves on Southampton Island in the early 1950's occurred because caribou were exterminated by overhunting. Caribou were reintroduced to the island in 1967 and wolves have returned through natural immigration.

Wolf numbers were reduced by trapping and aerial shooting in the Slave River Lowlands as part of a program to halt the decline of the bison herd. The wolf control program was discontinued when hunters failed to reduce their killing of bison voluntarily.

At present, wolves occupy all of their traditional range in the Northwest Territories and natural densities prevail in most areas. Density is highest on barren-ground caribou winter range and lowest on Victoria Island and the Queen Elizabeth Islands. The annual kill of wolves has increased during the last 20 years, probably because of rising pelt prices and the availability of snowmobiles for hunting wolves.

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HISTORICAL STATUS

Before 1950

Relatively few wolves (Canis lupus) were killed in the Northwest Territories before 1924 (Freeman 1976), when the first wolf bounties were introduced. Wolf hides had little commercial value and the religious beliefs of some Indians inhibited killing of wolves. The $30 bounty payment introduced in 1924 when white fox (Alopex lagopus) pelts, the mainstay of the high Arctic fur trade, were selling for only $15 was a considerable incentive to hunters and trappers and the wolf kill increased (Soper 1928). In addition, the number of trappers (mainly from Scandinavia and southern Canada) substantially increased during the early 1920's in response to high fur prices (Usher 1971). About 1000 wolves were killed during each of the 13 years when bounties were paid (1924-33 and 1937-39) (Fig. 1). After bounty payments were discontinued, the average annual wolf kill dropped to less than 700 (1934-36 and 1940-49). The change in the number of wolves killed was also related to the change in the number of trappers on the land. From 1938, trapping was restricted to Indians, Inuit, and non-natives who already held a permit (Usher 1971); in addition, the number of trappers declined during the 1940's because men left to fight in World War II.

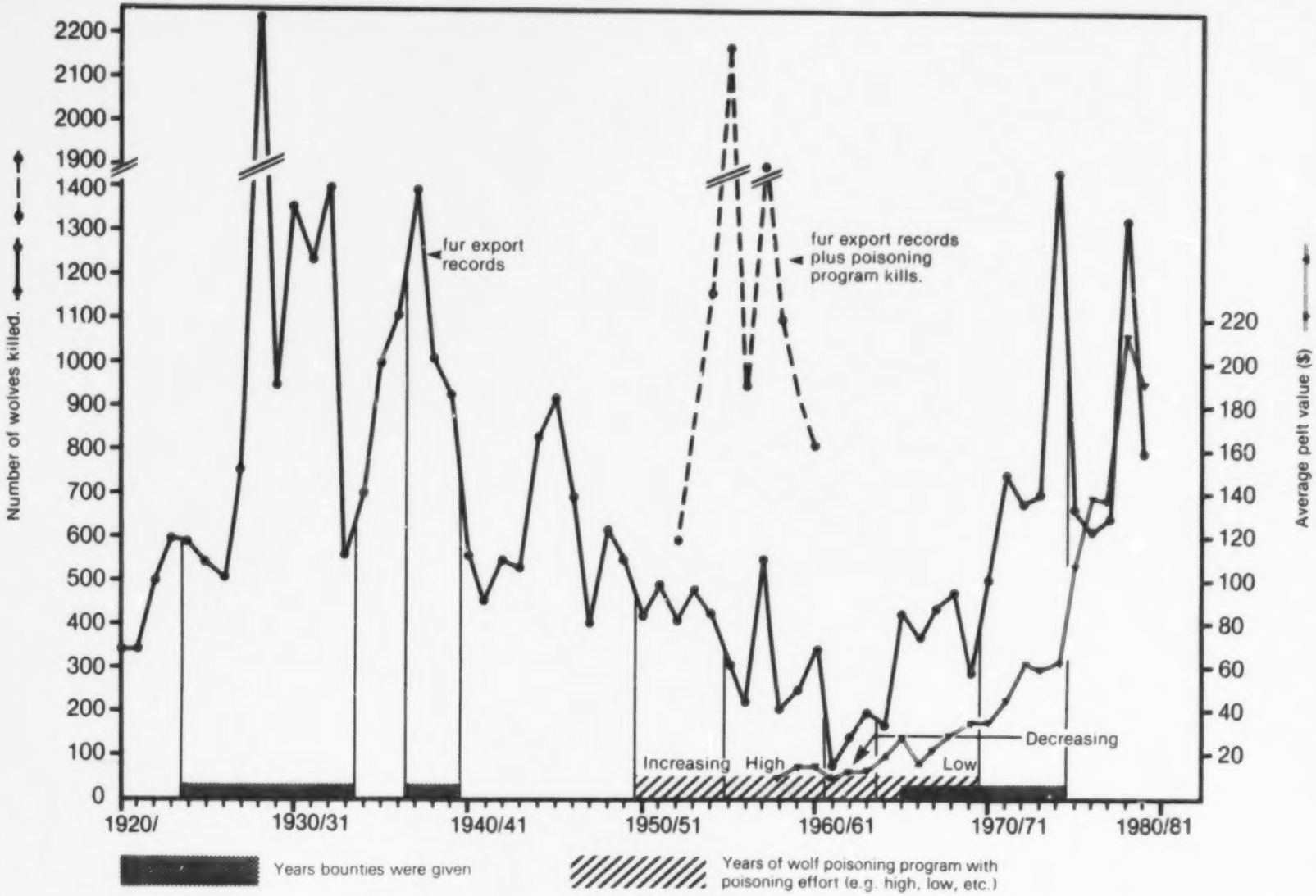

Figure 1. Number of wolf pelts exported from the Northwest Territories, 1920-21 to 1980-81.

1950 To Present

The number of wolves killed increased sharply in the mid-1950s (Fig. 1). In 1948, the first range-wide aerial surveys of caribou (Rangifer tarandus groenlandicus) indicated that mainland barren-ground caribou populations were considerably smaller than expected and were believed to be declining rapidly (Banfield 1954, Kelsall 1968). Because wolves were known to be the major predator on barren-ground caribou (Kuyt 1972), biologists believed that a reduction in the wolf population would buffer what was considered to be the real cause of the decline -- overhunting. The wolf control program begun in 1951 involved strychnine-laced baits being placed on caribou winter ranges by government biologists and predator control officers. The poisoning program expanded each year until, by the winter of 1955/56, baits were being distributed on nearly all caribou-occupied winter ranges between Great Bear Lake and Hudson Bay (Fig. 2). Control efforts remained high until 1960/61 when it was concluded that "control" had been achieved (Kelsall 1968).

Each year between 1955/56 and 1960/61, the poisoning program in the Northwest Territories and in northern Manitoba and Saskatchewan accounted for the deaths of an average of 1800 wolves, but the average for the Northwest

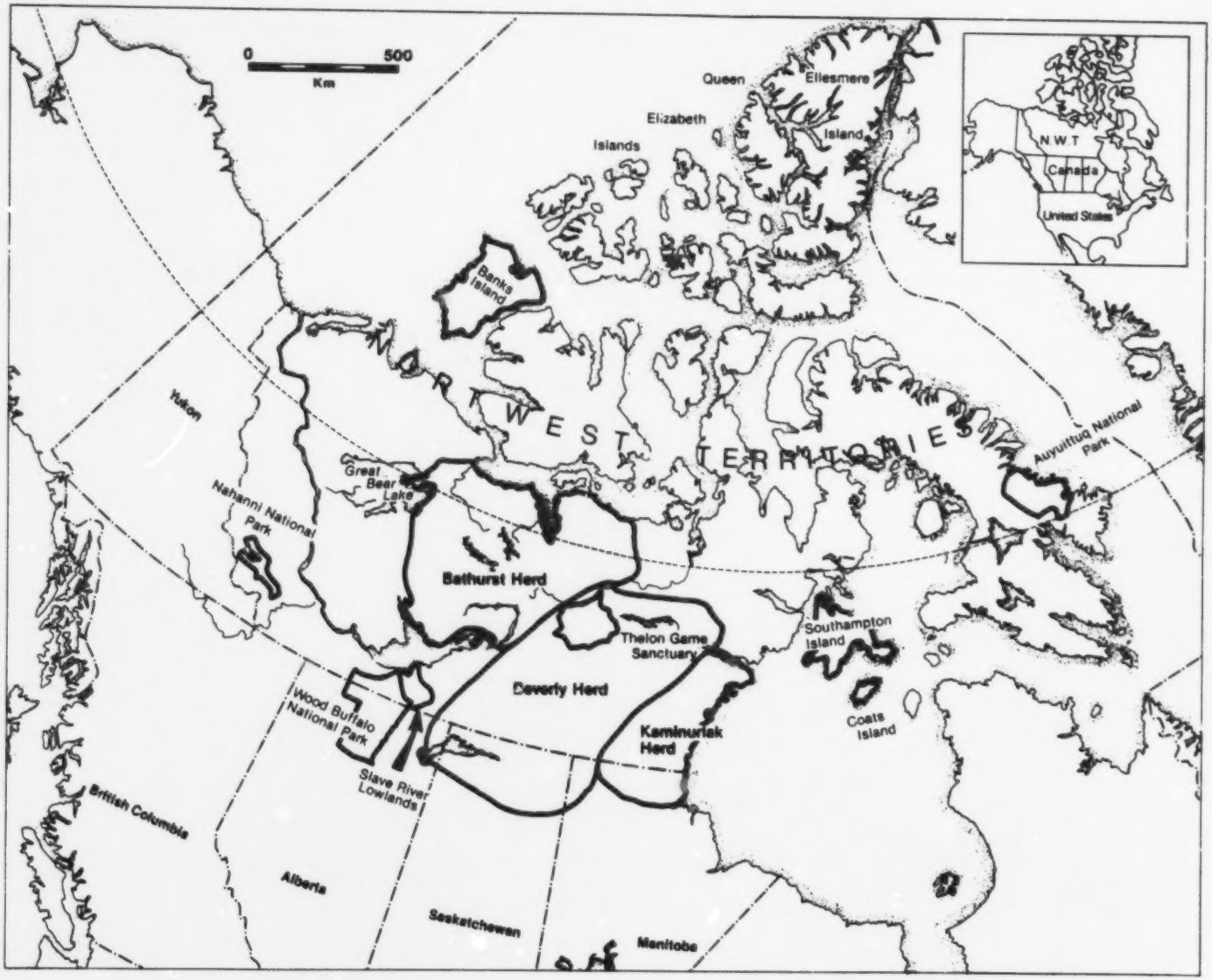

Figure 2. Map of the Northwest Territories showing major caribou herds where wolf populations were studied.

Territories alone was only 975 (Kelsall 1968). In addition, an average of 306 hides was exported annually from the Northwest Territories, bringing the yearly recorded kill to about 1300 (Fig. 1). Some of the wolves exported were probably taken as part of the wolf control program (and were thus counted twice), but fur export records underestimate the actual kill by the number of hides used within the Northwest Territories. The magnitude of these biases is unknown.

Kelsall (1968) concluded that wolf populations on the caribou ranges were substantially reduced by the wolf poisoning program because between 1955 and 1960 the number of wolves killed declined from 1755 to 450, the kill decreased from 44 wolves/$1000 expended to 14 wolves/$1000, and the proportion of pups in the population increased from 13% to 73%.

The poisoning program reduced the number of adult wolves in the population but the number of pups apparently increased. Between 1955 and 1960 the adult kill per dollar spent declined by 90% and the number of pups killed per dollar spent doubled. Although the wolf control program did not end in 1960/61, effort was reduced each year until 1963/64 when poisoning was finally eliminated from most areas; however, one predator control officer continued to poison wolves in northern Saskatchewan and the adjacent Northwest Territories until 1970. In

1965/66, against the advice of Canadian Wildlife Service biologists, a $40 wolf bounty was introduced throughout the Northwest Territories to give some economic assistance to trappers. Bounties continued to be paid until March 1975, although the legislation providing for those payments was not revoked until June 1980.

The author investigates the remains of a wolf-killed caribou.

Banks Island

During the massive poisoning program of the 1950's, strychnine was easily available and was used extensively on Banks Island between 1955 and 1959. The justification for poisoning was to reduce wolf depredation on trapped foxes (Usher 1971), but a convenient side effect was that poisoning also killed foxes, providing extra pelts for trappers. Usher (1971) believed that poisoning reduced wolf numbers on Banks Island and resulted in low wolf densities there throughout the 1960's. Poisoning may have reduced the number of wolves but it was probably intense hunting that kept numbers low. Hunting still appears to be keeping wolf numbers relatively low (less than 1 wolf/260 km^2) (Beak Consultants Ltd. 1975) considering the large population of potential prey (Vincent and Gunn 1981).

Southampton Island

Wolves were extinct on Southampton Island (Fig. 2) by the time the last caribou (their major prey) was shot in 1955 (Parker 1975). Forty-eight caribou were introduced to the Island in 1967 and by 1980 the population had grown to over 1000 animals. One wolf was shot on Southampton Island in 1980 and tracks of others were seen. Undoubtedly those wolves crossed on the ice from the adjacent mainland and I suspect a resident population will soon become re-established on the island.

Tundra wolf

Slave River Lowlands

The most recent control program in the Northwest Territories occurred in the Slave River Lowlands (Fig. 2) in 1978 and 1979 as part of a program designed to reduce the rate of a decline in the bison (Bison bison) population.

Between 1959 and 1974 the Slave River Lowlands bison herd fluctuated between 1500 and 2100 animals (Calef n.d.). In 1968 and 1970 a bison sport hunting season was opened for non-native residents of the Northwest Territories, and for non-residents, respectively. Between 1970 and 1974 native and sport hunters killed an average of 150 bison annually.

During the winter of 1974/75, ice and crusted snow reduced food available to bison in the Slave River Lowlands. Many bison starved while others, in their weakened condition, became more vulnerable to wolf predation (Van Camp and Calef 1980). The bison population declined from an estimated 1900 animals to 1250 between March 1974 and March 1975 (Fig. 3). By March 1976 the wolf population had increased (as indexed by the number of wolves seen during the annual bison counts), perhaps as a result of the increased number of carcasses and weakened individuals; and the bison population declined to 900 animals.

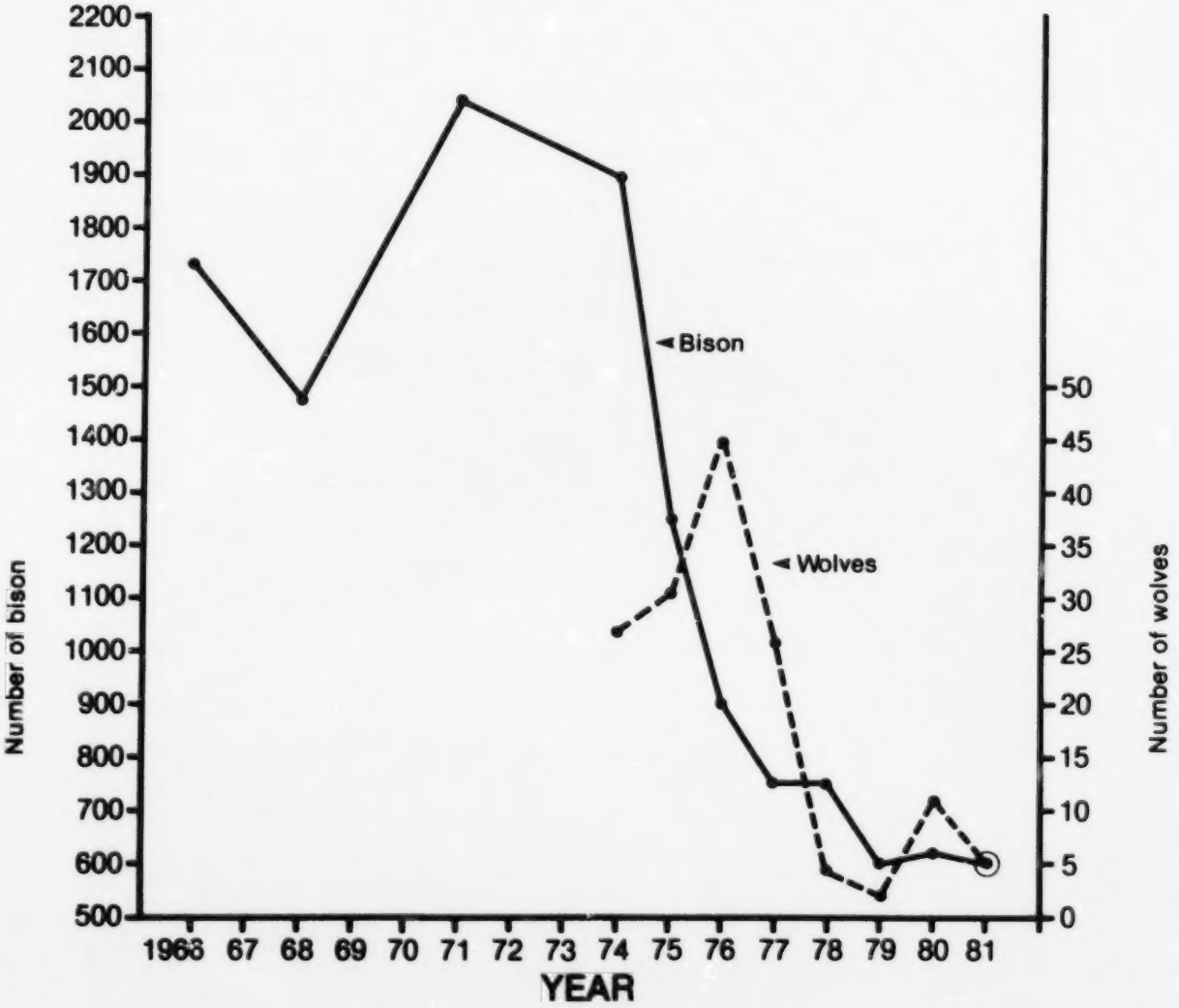

Figure 3. Number of wolves and bison observed in the Slave River Lowlands, 1966-81.

Both wolf and bison populations declined between March 1976 and March 1977, when 26 wolves and 750 bison were counted. Van Camp and Calef (1980) suggested that a theoretical model proposed by Haber et al. (1976) for a wolf-moose system could explain these observations. The model predicts that in a stable predator-prey system, subject to even moderate hunting pressure (3-5%), a natural perturbation such as the severe winter of 1974/75 is likely to trigger a drastic prey decline, with both predator and prey population sizes stabilizing at a much lower density. The solution to such a situation requires the reduction of both hunting and natural predation until the prey population increases above some undetermined level. The NWT Department of Renewable Resources has attempted to manage bison on the basis of this model.

In November 1977 wolf control was begun, with the aim but not the expectation of exterminating wolves from the bison herd's range. This control was generally supported by the local residents. Professional trappers who normally worked in the area were offered an incentive of $300 for each wolf. Trappers retained the hide, worth about $180. Bison sport hunting seasons were closed and native hunters were asked to shoot fewer animals, although their hunting remained unregulated. Thirty-four payments were made to trappers by March 1978 when the NWT Department of Renewable Resources tried to eliminate the remaining wolves by aerial shooting. Ten were shot from a

helicopter. Unfortunately, hunters did not restrict their shooting of bison and killed about 50 animals that year. Nevertheless, the bison population did not decline between March 1977 and March 1978 (Fig. 3) and only four wolves were seen during the March 1978 survey. The herd experienced a further setback when at least 39 bison died of anthrax during the summer of 1978. During the following winter, trapping incentive payments were made for 28 wolves. There was no spring aerial hunt. Again hunters did not substantially reduce their bison kill. Only two wolves and 600 bison were counted in March 1979 (Fig. 3). Because of the lack of hunter co-operation, wolf control was stopped and both predator and prey numbers appear to have stabilized at a lower level.

PRESENT STATUS

Although wolf densities have been reduced in some areas of the Northwest Territories through man's influence on the ecosystem (e.g. Southampton Island and the Slave River Lowlands), wolves now occupy all of their traditional range. The only place in the Northwest Territories where there is a naturally occurring prey population but no wolves is Coats Island in Hudson Bay (Fig. 2). Wolves are not able to colonize the island because it is surrounded by open water even in winter.

Estimates of wolf densities in the Northwest Territories are rare. In general, the lowest wolf densities are found on Victoria Island and the Queen Elizabeth Islands (Fig. 2) and the highest are found in association with wintering concentrations of barren-ground caribou. On southern Ellesmere Island, Riewe (1975) estimated that in the area of greatest wolf concentration, density was only 1 wolf/900 km^2. In April 1979 I estimated at least 250 wolves associated with a large segment of the Bathurst caribou herd in an area of 1600 km^2 (1 wolf/6.4 km^2). Parker (1973) found 1 wolf/20 km^2 in February 1968 on the winter range of the Kaminuriak caribou herd in northeastern Saskatchewan and northwestern Manitoba. Kelsall (1968) estimated that there may be 8000

wolves on all barren-ground caribou ranges combined (1 wolf/160 km^2), while Parker (1972) estimated wolf density on the Kaminuriak herd's range at about 1/500 km^2.

In the NWT Wildlife Ordinance, wolves are classified as both big game animals and fur bearers. For most hunters and most areas there is neither a season nor a bag limit. Only in the Thelon Game Sanctuary (Fig. 2) are wolves completely protected. Hunting by Indians and Inuit is permitted in all three national parks: Wood Buffalo, Nahanni, and Auyuittuq (Fig. 2). Most wolves are shot after pursuit by snowmobile but a few are trapped. The number of wolves killed has increased markedly since 1961/62 (Fig. 2), probably beause of the rising pelt value (Fig. 1) and the increased use of snowmobiles. The value of wolf hides exported from the Northwest Territories reached a peak of $280,000 in 1978/79.

(Opposite page)
A radio-collared wolf. The radio will transmit for 2-3 years. The collar stays on for the life of the wolf, unless chewed off by pack members.

FUTURE STATUS

The present policy of the NWT Department of Renewable Resources is that wolf control will not be undertaken unless there is evidence that an ungulate population is declining at least partly as a result of wolf predation.

All of the four major barren-ground caribou populations (the Kaminuriak, Beverly, Bathurst and Bluenose herds) are stable or increasing. If any were to decline substantially, temporary reduction in wolf numbers may be considered. The best way to ensure the long-term survival of natural wolf populations is to maintain abundant and productive caribou herds.

RESEARCH

Kuyt (1972) and Clark (1971) studied summer food habits of wolves on barren-ground caribou ranges in the Northwest Territories. Both concluded that caribou was the primary and preferred prey. On central Baffin Island Clark found that wolves ate caribou almost exclusively. Kuyt found that wolves on the Beverly caribou range ate mostly caribou, but their diet contained more small prey (such as mice, fish and birds) than on Baffin Island. The difference in the diets probably reflects caribou availability because Kuyt found that wolves denning close to the caribou's calving ground ate more caribou than wolves denning elsewhere.

The NWT Department of Renewable Resources has carried out two research projects on wolves. Both involved radio collaring.

In spring 1977, 10 wolves from four packs were collared in the Slave River Lowlands. The purpose was to determine the extent of wolf predation on bison calves. By analyzing scats, it was determined that bison represented 88% of the prey types eaten by wolves in that area during the winter, and continued to be the most important prey during the denning period for wolves whose territory contained bison. Other packs at that time

changed their food habits to smaller prey. Wolves in the Slave River Lowlands were territorial.

In 1979 and 1980, 39 wolves were collared in the vicinity of Gordon Lake and Indin Lake, which are in the treed portion of the Bathurst caribou range. The objective of this study was to determine if wolves preying on barren-ground caribou followed the caribou to their calving grounds in the spring. In the study group, dens were found at the treeline and as far as approximately 160 km out onto the barrens. Adult females remained at the den sites, while other wolves followed caribou as they continued north. Only one collared wolf, however, travelled as far as the calving ground of the Bathurst herd. Biologists have occasionally located wolf dens on calving grounds. These wolves may live in the region all year, preying on muskoxen and non-migratory caribou.

It is suspected that wolves preying on migratory caribou do not maintain territories, but wander between the boreal forest and the arctic coast--farther than any other wolves in Canada.

Top left. An antenna must be attached to the wingstrut of an aircraft for aerial tracking.

Top right. A hand-held antenna is used for locating wolves on the ground at close range.

Bottom left. The radio receiver used for tracking wolves. Each collar transmits a different frequency.

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